Complete Summary

GUIDELINE TITLE

The diagnosis and treatment of adult asthma.

BIBLIOGRAPHIC SOURCE(S)

New Zealand Guidelines Group (NZGG). The diagnosis and treatment of adult asthma. Wellington (NZ): New Zealand Guidelines Group (NZGG); 2002 Sep. 101 p. [129 references]

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Asthma

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Treatment

CLINICAL SPECIALTY

Allergy and Immunology
Emergency Medicine
Family Practice
Internal Medicine
Pulmonary Medicine

INTENDED USERS

Advanced Practice Nurses
Health Care Providers
Nurses
Patients
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To provide an evidence-based summary of the diagnostic management and treatment options available for asthma in the adult population of New Zealand
- To assist adults with asthma and their health care advisors evaluate the latest evidence and make informed decisions to improve health outcomes

TARGET POPULATION

Adults, 16 years and older, in New Zealand with asthma

This guideline does not address special subgroups that may require different treatment such as children, pregnant and/or lactating women or the elderly.

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis

1. Medical history including family and personal history of asthma, childhood wheezing, background of atopy, hay fever, eczema or specific allergy to house dust mites, cats, pollens, food or medication. Questions regarding recent infections, exercise habits, allergen exposure, occupational exposure, medication use, smoking, stress
2. Physical examination including observation for shortness of breath with speech; wheezing and chest tightness; vital signs (e.g., respiratory rate, pulse); auscultation of chest
3. Initial testing
    - Peak expiratory flow rate measurement
    - Spirometry testing with bronchodilator
4. Differential diagnoses such as upper respiratory tract disease (e.g., sinusitis); post infective bronchial hyperresponsiveness; chronic obstructive pulmonary disease (COPD); left ventricular failure; central airways obstruction/foreign body; vocal cord dysfunction; hyperventilation; bronchiectasis; interstitial lung disease
5. Assessment of severity of asthma (mild, moderate, severe)
6. Bronchodilator response testing or trial of oral or inhaled corticosteroids
7. Follow-up testing
    - Methacholine, histamine or saline challenge test
    - Exercise challenge test
    - Skin prick test
8. Referral to respiratory specialist

Treatment/Management

Acute Severe Asthma

1. Oxygen therapy
2. Documentation of severity of airflow obstruction
3. Pharmacological treatment
    - Short-acting inhaled beta$_2$-agonists (salbutamol, terbutaline)
    - Anticholinergics (ipratropium)
    - Corticosteroids (oral prednisone, prednisolone, methylprednisolone or intravenous [IV] hydrocortisone)
4. Admit to hospital, if necessary or discharge to home

Chronic Asthma

1. Pharmacological treatment
    - Short-acting inhaled beta$_2$-agonists (salbutamol, terbutaline)
    - Combined anticholinergic (ipratropium) and beta$_2$-agonist therapy
    - Inhaled corticosteroids (beclomethasone dipropionate, budesonide, fluticasone propionate)
    - Long-acting beta$_2$-agonists (bambuterol [oral] or formoterol, salmeterol [inhaled])
    - Theophyllines
    - Leukotriene receptor antagonists (montelukast)
    - Oral steroids (prednisone)

    Note: Antihistamines and ketotifen are ineffective for treating asthma.

2. Monitoring of symptom control
3. Continuation of treatment and back-titration of medication to lowest effective dose
4. Review of environmental factors, patient compliance and inhaler technique
5. Patient education in self management

Non-Pharmaceutical and Complementary Therapies

1. Immunotherapy (close supervision required due to risk of anaphylaxis)
2. Breathing exercises (e.g., Buteyko Breathing Techniques)
3. Other therapies such as relaxation techniques, acupuncture, manual therapies, homeopathy, the "Alexander technique" physical therapy, speleo-therapeutic interventions. Note: There is insufficient evidence of adequate quality to determine benefit from these therapies.

Secondary Prevention of Asthma in Adults

1. Patient education regarding reduction of exposure to allergens (e.g., impermeable mattress covers, regular vacuuming and removal of soft furnishings)

Management in the Mäori Community

1. Consultation with Mäori support person or patient advocate
2. Culturally appropriate patient education

MAJOR OUTCOMES CONSIDERED

- Clinical symptoms (e.g., airflow, respiratory rate, pulse)
- Lung function
- Number of emergency room visits/hospital admissions
- Frequency/degree of exacerbations/re-admissions
- Morbidity and mortality rates
- Rate of patient use and dosage of asthma medication
- Medication interactions and adverse effects
- Work absenteeism (days/time missed)
- Patient satisfaction with asthma treatment

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases
Searches of Unpublished Data

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

As there are a number of published international guidelines that have systematically reviewed the evidence relating to asthma, the asthma guideline development team elected not to repeat a review of all the literature but to use existing guidelines as a base or â œseedâ resource.

The New Zealand Health Technology Assessment group (NZHTA) performed a systematic search for published guidelines on adult asthma. These were evaluated using the Appraisal of Guidelines Research and Evaluation (AGREE) assessment tool. Those developed in a systematic way, so that their recommendations were reliably and explicitly evidence-based, were selected as â œseedâ guidelines. These included the:

- Canadian Asthma Consensus Report 1999
- The Australian Asthma Management Handbook
- Primary health care Management of Asthma, A National Clinical Guideline, November 1998 Scottish Intercollegiate Guidelines Network

These selected guidelines have reviewed literature published up to 1999.

The asthma guideline development team then identified questions and strategies for a systematic search and inclusion criteria for studies relating to the following:

1. Diagnosis of asthma
2. Non-pharmaceutical strategies for secondary prevention
3. Education and patient self-management
4. Pharmaceutical therapies

Studies that expressed outcomes in terms of commonly assessed POEM (Patient Oriented Evidence that Matters) endpoints only were included. (See Appendix 7 of the original guideline document for details.)

Only therapies available or licensed for use within New Zealand were included for review. The New Zealand Guidelines Group (NZGG) now has a policy of evaluating all internationally available treatments and therapies when a new guideline is developed. However, this policy was approved at a stage when most of the research for the adult asthma guideline had already been conducted. After reviewing international practice to ensure no potentially important therapy would be excluded, it was decided, to proceed with the current NZ focused review, rather than delay the release of the guideline. An assessment of all therapies will be included in a review of the guidelines, in three years.

A systematic critical review of the selected literature published from 1 January 1997 to December 2000 was undertaken by the NZHTA and by the member(s) of the working group responsible for drafting the particular section of the guideline. Attempts were also made to identify and include unpublished work and conference abstracts. This search was subsequently updated in March 2002 prior to completion of the guideline. The NZHTA also performed a search (2002) for pertinent qualitative literature, which was critically reviewed by Dr. Isobel Martin and her staff of the Dunedin School of Medicine. (See Appendix 7 of the original guideline document for details.)

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

The asthma guideline development team agreed to rank the evidence according to the revised system of the Scottish Intercollegiate Guidelines Network (SIGN) as follows:

1++

High quality meta-analyses, systematic reviews of randomised controlled trials (RCTs), or RCTs with a very low risk of bias.

1+

Well conducted meta-analyses, systematic reviews of RCTs, or RCTs with a low risk of bias.

1-

Well conducted meta-analyses, systematic reviews of RCTs, or RCTs with a high risk of bias.

2++

High quality systematic reviews of case-control or cohort studies with a very low risk of confounding, bias, or chance and a high probability that the relationship is causal.

2+

Well conducted case-control or cohort studies with a low risk of confounding, bias, or chance and a moderate probability that the relationship is causal.

2-

Case-control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal.

3

Non-analytic studies, e.g., case reports, case series.

4

Expert opinion.

Note: Studies that were graded 1- or 2- were considered similar to level 3 or 4 evidence because of methodological flaws. Qualitative material was systematically appraised for quality, but was not ascribed a level of evidence.

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Where evidence was available from randomized controlled trials (RCTs) and systematic reviews, recommendations were based on these. Where there was a lack of evidence from high quality studies, recommendations were based on the best available evidence or expert opinion.

In general the authors responsible for drafting each section of the guideline graded the evidence for each individual section.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Various members of the guideline working group assumed responsibility for drafting sections of the guideline. The whole group carefully reviewed the summary of conclusions and recommendations and any disagreements were resolved by consensus.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Grades of Recommendation

Grade A At least one meta-analysis, systematic review, or RCT rated as 1++, and directly applicable to the target population; OR systematic review of RCTs or a body of evidence consisting principally of studies rated as 1+, directly applicable to the target population, and demonstrating overall consistency of results.

Grade B A body of evidence including studies rated as 2++, directly applicable to the target population, and demonstrating overall consistency of results; OR extrapolated evidence from studies rated as 1++ or 1+.

Grade C A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results; OR extrapolated evidence from studies rated as 2++.

Grade D Evidence level 3 or 4; OR extrapolated evidence from studies rated as 2+. Good Practice Point Recommended best practice based on the clinical experience of the guideline development group.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Clinical Validation-Pilot Testing
External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

An early draft of this guideline was widely distributed to consumer, primary health care organisations, provider organisations, expert reviewers, asthma nurses, and other clinicians for comment. It has been extensively modified to address the feedback received. The previous draft of the guideline has been piloted amongst primary health care practitioners and modified as a result of their feedback. The guideline was sent to a number of organisations and asthma societies as part of the peer review process (see the original guideline document for a list of these organisations and societies).

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions for the Levels of Evidence (1++ to 4) and Grades of Recommendation (A to D and Good Practice Points) are given at the end of the Major Recommendations field.

Diagnosis of Asthma

- In adults presenting for a first non-acute assessment, physical examination is usually non-contributory unless an audible wheeze is present or detected on auscultation of the chest. (Good Practice Point)
- Doctors should investigate the possibility of an occupational cause in all adult onset asthma. (Good Practice Point)
- Adults with asthma allergic rhinitis and/or eczema should have their atopic status assessed with skin prick testing to common allergens such as house dust mites, cats, grasses and moulds. (Good Practice Point)

General Principles of Pharmaceutical Therapy in Acute Asthma

- The addition of inhaled anticholinergic medication at the first presentation of acute asthma over a period of 90 minutes improves peak flow and symptoms and reduces hospital admissions. (A)
- Systemic corticosteroids should be given early in acute severe asthma. (B)
- Beta$_2$-agonists should be administered as required by inhalation and titrated using objective and clinical measures of airflow obstruction. (B)
- Supplemental oxygen should be used in acute severe asthma to maintain an oxygen saturation (SaO_2) > 94%. (D)

General Principles of Pharmaceutical Therapy in Chronic Asthma

- Short-acting beta$_2$-agonists (SABAs) should be used on an as required basis to relieve symptoms. They should not be used in a regular and fixed regimen (e.g., four times a day), as a maintenance treatment agent. (A)
- Anticholinergic agents are not recommended first line but can be used in those unable to tolerate beta$_2$-agonists or in combination with beta$_2$-agonists. (C)
- All patients with symptomatic asthma should be prescribed an inhaled short-acting beta$_2$-agonist. (Good Practice Point)
- Use a delivery device that the patient prefers and can use effectively. (Good Practice Point)
- The use of 2 or more canisters of beta$_2$-agonists/month or > 12 puffs a day is a marker of poor control for asthma. (Good Practice Point)

Inhaled Corticosteroids (ICS)

- Treatment with inhaled corticosteroids (ICS) is recommended in those who have daily symptoms of asthma or patients requiring SABAs daily. (A)

- Most adults with asthma should be initiated on treatment with low dose inhaled corticosteroids (beclomethasone dipropionate equivalent 400 micrograms/day). (B)
- Fluticasone propionate is at least twice as potent as beclomethasone dipropionate. (A)
- Once-daily treatment with budesonide is as effective as twice-daily in mild asthma, once control has been achieved. (A)
- ICS have a relatively flat dose response curve. Little additional benefit is gained from doses above 500 micrograms/day of fluticasone propionate or 800 micrograms/day of beclomethasone dipropionate/budesonide. (B)
- There is evidence of an increased risk of cataracts, reduced bone mineral density, glaucoma and bruising of the skin with long-term treatment with high dose ICS (e.g., more than 800 micrograms/day beclomethasone dipropionate). (B)
- Early treatment with ICS in people with persistent symptoms and impaired lung function leads to better lung function in the medium term, and may help prevent the development of irreversible airflow limitation. (C)
- High doses of ICS should be avoided where possible for adults with asthma who have pre-existing conditions or vulnerability to conditions such as osteoporosis or cataracts. (Good Practice Point)
- The guideline team recommends that long-acting beta$_2$-agonists should always be considered in individuals who continue to experience symptoms despite taking moderate doses of ICS (800 micrograms beclomethasone dipropionate/day) as this is at the top end of the dose response curve of ICS and higher doses are associated with increased risk of adverse effects (opinion). (Good Practice Point)

Long-Acting Beta$_2$-Agonists (LABAs)

- In people who continue to experience symptoms despite taking ICS (greater than 400 micrograms beclomethasone dipropionate/budesonide), the addition of long-acting beta$_2$-agonists is more effective than doubling the dose of ICS in improving symptoms, reducing exacerbations and reducing adverse effects. (A)
- In people taking ICS, long-acting beta$_2$-agonists are more effective in controlling symptoms than regular use of regular short-acting beta$_2$-agonists.(A)
- Long-acting beta$_2$-agonists are more effective than theophylline in control of nocturnal asthma including night waking and need for rescue medication, symptom scores, symptom free days and have fewer adverse effects. (A)
- Long-acting beta$_2$-agonists should not be used for the treatment of acute (or chronic) symptoms of asthma in the absence of inhaled anti-inflammatory therapy. (B)
- There is insufficient evidence to establish whether oral long-acting beta$_2$-agonists confer the same benefits in controlling exacerbations as inhaled long-acting beta$_2$-agonists. (C)

Leukotriene Receptor Antagonists (LTRAs)

- ICS (in the dose equivalent of 250-400 micrograms/day beclomethasone dipropionate) are more effective than LTRAs in reducing symptoms including night waking, and the need for rescue beta$_2$- agonists. (A)

- ICS produce better lung function and quality of life and reduced symptoms and reduced need for rescue beta$_2$-agonists than LTRAs. (A)
- LTRAs are associated with increased adverse withdrawal effects compared with ICS. (A)
- Adding LTRAs to ICS has shown small additional improvement in symptom control but not to the extent of that of adding LABAs. (A)
- LTRAs may have a preventative role in aspirin and exercise induced asthma and in those who cannot take inhaled therapy. (Good Practice Point)

Cromones

- Sodium cromoglycate can be used as alternative to or in addition to short-acting beta$_2$-agonists for the prevention of exercise induced asthma. (A)
- Sodium cromoglycate requires more frequent administration than inhaled corticosteroids and the onset of benefit may be delayed. (A)
- There is no additional benefit in adding sodium cromoglycate to an established regimen of inhaled or systemic corticosteroid. (A)

Theophylline

- Theophylline should not be used as first line therapy. (A)
- Theophylline is associated with more frequent adverse effects and is less effective than salmeterol in improving lung function, relieving both night and day symptoms and reducing the need for rescue therapy. (A)
- Theophylline has a narrow therapeutic index and variable metabolism. (A)
- Adding theophylline to low dose ICS (400 micrograms beclomethasone dipropionate/day) may be an effective alternative to doubling the dose of ICS. (B)
- Serum monitoring of theophylline is recommended. A clinical effect has been demonstrated at serum levels of 29-55 micromoles/L. Where necessary the dose can be titrated up to a serum level of 82 micromoles/L. (Good Practice Point)

Devices

- Inhaled drug delivery is superior to oral (or parenteral) delivery for short-acting beta$_2$-agonists, anticholinergics, long-acting beta$_2$-agonists and inhaled corticosteroids. (A)
- There is no significant difference between delivery devices when used correctly. (A)
- Metered dose inhalers (MDIs) plus spacers are at least as effective as wet nebulisers in mild to moderate acute asthmatic episodes. (A)
- Adults with asthma should receive adequate training in their inhaler technique to ensure competence. (A)
- People´s technique in using their devices should be reassessed and reinforced frequently at appropriate opportunities. (B)
- Choice of device should be made on the basis of ease of use, patient preference and overall cost. (Good Practice Point)
- There is no evidence that any particular device reduces the risk of systemic adverse effects. (Good Practice Point)
- Dry powder devices and MDI plus spacers may reduce oropharyngeal adverse effects. (Good Practice Point)

Management of Asthma in the Mäori Community

- Management of Mäori asthma by Mäori providers must, to sustain the benefits, be an ongoing programme, rather than a short-term intervention. (D)
- Health professionals providing care for Mäori adults with asthma should be sensitive to the particular needs of Mäori, and encourage the use of a support person or advocate. (Good Practice Point)

Non-Pharmaceutical and Complementary Therapies

- Immunotherapy reduces asthma symptoms and use of medication but its long-term effects and efficacy relative to other therapies is unknown and there are serious risks associated with its use. (A)
- Various breathing exercises have shown no overall beneficial outcomes in the clinical treatment of asthma. (A)
- Buteyko Breathing Techniques may be helpful in reducing reliever use and improving quality of life, but this will involve a considerable cost to the patient. There is no benefit to other aspects of management of asthma. (B)
- Health professionals should be open to the possibility of the use of complementary therapies by people they are caring for. It could be suggested that use of such therapies be considered a trial to achieve better control, and methods for self assessment and monitoring could be discussed. (Good Practice Point)
- Careful monitoring after immunotherapy is essential due to the risk of anaphylaxis. Close supervision is required for 1-2 hours. (Good Practice Point)

Secondary Prevention of Asthma in Adults

- In adults with house dust mite allergic asthma, dust mite-impermeable covers applied to the mattress, duvet, and pillows reduces exposure to the allergen and decreases symptoms. (B)
- Adults with house dust mite allergic asthma should consider minimising dust exposure by:
    - regular vacuuming with a cleaner which has a HEPA filter
    - removing soft furnishings and carpet from bedrooms, in addition to using the barrier methods. (Good Practice Point)

Education, Self Management and Routine Clinical Care

- Primary health care teams should use a checklist of patient information and instruction, as part of their practice structure for adults with asthma.(A)
- Primary health care teams should make arrangements to review all adults with asthma on their register at least once a year. (A)
- All adults with asthma should be offered a customised self-management plan. (A)
- A structured educational programme should be provided for adults with asthma. (A)
- The use of peak expiratory flow monitoring in self-management plans may be beneficial. (C)
- Adults with asthma in primary health care should be reviewed regularly by a nurse with training in management of people with more severe asthma. (C)

- Practices should frequently conduct audit or quality improvement activities linking the management of adults with asthma to guidelines for best practice. (D)
- Health professionals providing care for adults with asthma should be aware of the needs of adults with asthma from socially disadvantaged populations. (Good Practice Point)
- Where there is a failure to control asthma symptoms, practitioners should consider the possibility of non-adherence to treatment. (Good Practice Point)
- A request for a repeat inhaler, and/or a visit to the pharmacist should be used as an opportunity for a brief review of pattern of medication use and inhaler technique. (Good Practice Point)

Audit and Performance Indicators

- Comprehensive details about each adult with asthma should be recorded as part of routine clinical practice. (Good Practice Point)
- Audit of asthma performance indicators is necessary to monitor quality of adult with asthma´s care, and to ensure best practice services are provided. Audit should take place every twelve months. (Good Practice Point)

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Expert opinion.

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Grade C A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results; OR extrapolated evidence from studies rated as 2++.

Grade D Evidence level 3 or 4; OR extrapolated evidence from studies rated as 2+.

Good Practice Point Recommended best practice based on the clinical experience of the guideline development group.

CLINICAL ALGORITHM(S)

The original guideline document provides four algorithms:

- Algorithm for the Diagnosis of Asthma in Adults
- Algorithm for the Treatment of Acute Severe Asthma
- Algorithm for Therapy for Chronic Asthma
- Algorithm for Management of Chronic Asthma

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations" field).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Appropriate evidence-based medical treatment and management of asthma in adults
- Decreased morbidity and mortality due to asthma
- Improved patient self management of asthma and related symptoms
- Decreased health care costs associated with asthma

POTENTIAL HARMS

Medication Interactions and Adverse Side Effects

Inhaled Corticosteroids (ICS)

- In cross sectional observational studies there is evidence of an increased risk of cataracts, reduced bone mineral density, glaucoma and bruising of the skin with long term treatment with high dose inhaled corticosteroids.

Long-Acting Beta$_2$-Agonists (LABAs)

- Adverse effects associated with salmeterol include tachycardia, tremor, headaches, muscle cramps

Leukotriene Receptor Antagonists (LTRAs)

- The reported rate of adverse effects is similar to that of ICS, but LTRAs are associated with a greater risk of discontinuation.

Theophylline

- Theophylline has a narrow therapeutic to toxicity ratio and, as its bioavailability varies between individuals and within individuals according to their clinical status, measuring serum concentrations is still recommended.
- Theophylline clearance is subject to several drug interactions: cimetidine, beta-blockers, and quinolone antibiotics (e.g., ciprofloxacin, enoxacin, norfloxacin, erythomycin, triacetyloleandomycin) and oral contraceptives inhibit clearance. Other xanthine medications and heavy caffeine consumption also decrease clearance. Hepatic enzyme inducers (e.g., phenytoin, barbiturates, rifampicin and smoking) increase theophylline clearance. Theophylline also increases the clearance of lithium.
- Common adverse effects include headache, nausea, vomiting, abdominal discomfort, restlessness and insomnia. There also can be increased acid secretion, gastro-oesophageal reflux and diuresis. High serum concentrations cause agitation, convulsions, tachyarrythmias, coma and death.

Immunotherapy

- Allergen-specific immunotherapy (also known as hyposensitisation or desensitisation) carries a risk of potentially fatal anaphylaxis. Close medical supervision is required for 1-2 hours.

Subgroups Most Likely to be Harmed:

Inhaled Corticosteroids

- Elderly and immunocompromised patients may be at increased risk for cataracts, reduced bone mineral density, glaucoma, oropharyngeal candidiasis, dysphonia, hypothalamic-pituitary-adrenal (HPA) axis suppression, and bruising of the skin with long term treatment with high dose inhaled corticosteroids.

Theophylline

- Patients at increased risk include the elderly, those with cardiac failure, liver disease or on medication known to interact with theophylline.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- Clinical guidelines are produced to help health professionals and consumers make decisions about health care in specific clinical circumstances. Research has shown that if properly developed, communicated and implemented, guidelines can improve care. While guidelines represent a statement of best practice based on the latest available evidence (at the time of publishing), they are not intended to replace the health professional´s judgment in each individual case.
- This guideline does not address special subgroups that may require different treatment such as children, pregnant and/or lactating women or the elderly. Nor does it seek to thoroughly address the use of complementary treatments for asthma.
- The goal in all asthma treatment is to minimise symptoms with the fewest possible adverse effects. But, as the severity of asthma increases, adults with asthma and their health professionals may need to consider carefully the trade-off between symptom control, patient safety (especially the prevention of life threatening asthma) and the adverse effects and risks of medication.
- In the process of development of this guideline, the guideline team found that there was insufficient evidence of adequate quality on a number of issues including:
    - Non-pharmaceutical management of chronic asthma
    - Management of asthma in the Mäori community
    - Non-pharmaceutical and complementary therapies
    - Secondary prevention of asthma in adults

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Education programmes

Even if the most appropriate asthma management plans are formulated, patient and provider attitudes can be major barriers to implementing them in clinical practice. One study showed that both groups were unenthusiastic about management plans, health professionals doubting people´s ability to assimilate information and people denying that the plans would be of use to them.

Furthermore, general practitioners (GPs) feel past guidelines for asthma control have been impractical and confusing due to differing originating bodies and that there was little incentive to educate. The two main concerns have been inconsistency in recommendations for both treatment and patient behaviour issues.

Education of both adults with asthma and practitioners about this guideline should address these issues specifically. It is intended that this guideline will result in the following opportunities:

Education

- A facilitator´s pack for regional continuing medical education (CME) and others (e.g., small group education sessions for provider and support organisations) targeted at specific groups (such as GPs, pharmacists, asthma nurses, practice nurses or other primary health care nurses and asthma associations) will be developed.
- On-line and down-loadable self-audit CME will be developed.
- The New Zealand Guidelines Group (NZGG) will work with relevant organisations to promote and facilitate educational programmes.
- A practice audit programme linking to the treatment of adults with asthma to promote best outcomes will be developed.

Summaries

Summaries of this guideline will be produced for:

- Primary health care clinicians
- Consumers
- Mäori and Pacific Island populations

Tools

Various tools to facilitate the use of this guideline will be developed, including:

- Pop-up diagnostic and treatment algorithms for practitioner software systems
- Interactive guidelines available from the NZGG web site and on disk
- Wallet cards for adults with asthma

Identification of barriers to best practice

During production of this guideline, a number of barriers to the care recommended by the guideline have been identified such as the cost to the consumer of regular consultation and review, and the gap between the Pharmac access criteria for long-acting $beta_2$-agonists at the outset of the guideline development and the identified best practice. On national issues such as these, the dissemination and implementation of the guideline will include the NZGG and the guideline development group developing proposals for processes by which the barriers can be addressed.

There is likely to be considerable regional variation in the particular barriers that will apply. The NZGG is also developing a handbook for the local adaptation of national guidelines, which addresses the issue of how regional service providers may identify regional barriers to best practice and formulate strategies to overcome them.

Audit and Performance Indicators

Quality

Adults with asthma, service providers and funders of asthma services all have an interest in the quality of the care and management of adults with asthma. This places a responsibility on service providers to collect information relevant to different perspectives. The guideline developers suggest:

- A minimum data set for collection relating to each individual with asthma; and
- Additional data for periodic audit (by an internal or external agency).
- Suggested data for routine collection includes:
    - Basic demographics of adults with asthma in each practice (age, gender and ethnicity)
    - Current medications, and devices prescribed and dose levels
    - Peak flow levels recorded at each asthma related visit
    - Details of allergen testing results where appropriate
    - Information about the dates of discussions about device and spacer use/inhaler technique and information about use of a self-management plan (this can be provided by the primary health care nurse or respiratory educator)
    - Spirometry results, if available
    - Risk factors (e.g., smoking)
    - Ongoing recording and monitoring of:
        - Inhaled corticosteroid (ICS) use and doses
        - Short-acting $beta_2$-agonist use
        - Night waking
        - Limitation of daily activity
    - Details of emergency department treatments and/or admissions to hospital
    - Details of adverse events or effects (e.g., thrush)
    - Number of days of work/daily activities
    - Psychosocial issues associated with asthma addressed
    - Any barriers to concordance to treatment plan.

Audit

Audit is a systematic, independent and documented process for obtaining evidence and evaluating it objectively to determine the extent to which a service, such as a primary health care practice, is meeting best practice standards. In order to assess whether adult asthma services are being provided effectively, a register of patients with asthma may be established and a system alert for repeat prescriptions. In addition, the following suggested performance indicators may be assessed.

- Percentage of adults on asthma register as a proportion of adults enrolled in the practice.
- Number of individuals with suboptimal control taking ICS at more than 800 micrograms and who are not taking long-acting $beta_2$-agonists
- Number of preventers prescribed proportional to relievers prescribed
- Number of systematic steroid treatments per year
- Number of adults with asthma offered a self-management plan
- Number of adults with asthma who had inhaler technique checked and self-management plans reviewed within the last twelve months
- Number and frequency of emergency nebuliser treatments attendance and hospital admissions

In addition to these indicators, primary health care organisations and District Health Boards will want to review prescribing patterns.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

New Zealand Guidelines Group (NZGG). The diagnosis and treatment of adult asthma. Wellington (NZ): New Zealand Guidelines Group (NZGG); 2002 Sep. 101 p. [129 references]

ADAPTATION

Not applicable. Guideline was not adapted from another source.

DATE RELEASED

2002 Sep

GUIDELINE DEVELOPER(S)

New Zealand Guidelines Group - Private Nonprofit Organization

SOURCE(S) OF FUNDING

The New Zealand Ministry of Health

GUIDELINE COMMITTEE

Asthma Guideline Development Team

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Members of the Guideline Development Team: Ian Town (Co-Chair); Peter Didsbury (Co-Chair); Peter Black; Stephen Child; Julian Crane; Barbara Docherty; Diana Hart; Makere Hight; Michelle Meyer; Kate Modabe; Peter Moodie; Errol Raumati; Larry Skiba; John Wellingham; Rowena Cave (Project Manager)

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Declarations of competing interests

Peter Black has received research funding, travel support or has acted as a consultant for the New Zealand or international offices of the following companies:

- GlaxoSmithKline NZ Ltd
- AstraZeneca NZ Ltd
- Aventis
- Pfizer

Julian Crane has received research funding, travel support or has acted as a consultant for the New Zealand or international offices of the following companies:

- GlaxoSmithKline NZ Ltd
- Air Flow Products (Asthma Foundation)
- AAAAI

Ian Town has received research funding, travel support or has acted as a consultant for the New Zealand or international offices of the following companies:

- GlaxoSmithKline NZ Ltd
- AstraZeneca NZ Ltd
- Boehringer Ingelheim (NZ) Ltd
- Merck Sharp & Dohme (NZ) Ltd

Stephen Child has received funding from the following companies for the presentation of talks to General Practitioners:

- AstraZeneca NZ Ltd
- GlaxoSmithKline NZ Ltd
- Boehringer Ingelheim (NZ) Ltd.

Errol Raumati has received funding for travel and accommodation from the following company:

- GlaxoSmithKline NZ Ltd.

Peter Moodie has received honorariums for his membership of the Glaxo Foundation from:

- GlaxoSmithKline NZ Ltd.

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available from the New Zealand Guidelines Group (NZGG) Web site.

Print copies: Available from the New Zealand Guidelines Group Inc., Level 30, Grand Plimmer Tower, 2-6 Gilmer Terrace, PO Box 10-665, Wellington, New Zealand; Tel: 64 4 471 4188; Fax: 64 4 471 4185; e-mail: info@nzgg.org.nz.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- New Zealand Guidelines Group (NZGG). Guideline summary. Wellington (NZ): New Zealand Guidelines Group (NZGG); 2002 Aug. 6 p.

Electronic copies: Available in HTML format from the New Zealand Guidelines Group (NZGG) Web site.

Print copies: Available from the New Zealand Guidelines Group Inc., Level 30, Grand Plimmer Tower, 2-6 Gilmer Terrace, PO Box 10-665, Wellington, New Zealand; Tel: 64 4 471 4188; Fax: 64 4 471 4185; e-mail: info@nzgg.org.nz.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on May 16, 2003. The information was verified by the guideline developer on August 18, 2003.

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Date Modified: 11/15/2004